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(54)【発明の名称】 結露を防止したバタフライ弁

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(57)【特許請求の範囲】

【請求項1】円筒状の流路を貫設した弁本体内に弾性密封部材からなるシートリングを装着し、該シートリングに接離する円盤状の弁体を回動自在に軸支し、弁体を軸支する駆動側弁棒を挿通する弁軸筒を弁本体から径方向に延び出させ、弁本体並びに外端部を除く弁軸筒の弁軸挿通部をアルミニウム等の鋳物材で一体に形成し、弁軸挿通部の外端に断熱性樹脂からなる連結フランジ部を廻り止め状態で且軸方向の抜け止めを四つつく固着し、該連結フランジ部にアクチュエータを載置支持するようにした結露を防止したバタフライ弁において、アルミニウム等の鋳物材で形成した弁軸挿通部の外端部外周面に連結溝を等間隔に複数形成すると共に、該連結溝の間に位置してネジ孔を有するネジ筒部を設け、断熱性樹脂からなる連結フランジ部に前記ネジ溝に嵌入する連結脚

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を形成し、連結溝への連結脚の嵌入により連結フランジ部を廻り止め状態で弁軸挿通部に連結しつつ、連結フランジ部からネジ筒部のネジ孔に螺入されるネジにより連結フランジ部を弁軸挿通部に抜け止め状態で連結したことを特徴とする結露を防止したバタフライ弁。

【請求項2】ネジ筒部を含む弁軸筒の外端部外周面を受け入れる嵌合壁を連結フランジ部に形成し、該嵌合壁内に連結脚を形成すると共にネジ筒部を嵌入する受入孔を形成したことを特徴とする請求項1記載のバタフライ弁。

【発明の詳細な説明】

【0001】

【発明の属する分野】この発明は、結露を防止したバタフライ弁に関し、更に詳しくは管路を流下する流体と大気との温度差に起因して、大気中に露出した部分に結露

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が生じてくるのを防止するバタフライ弁に関する。

【0002】

【従来の技術】従来、冷房や冷凍用配管の如き低温流体が流過する管路は、流下する流体と大気との温度差により、大気中の水分が管路の外面に結露するため、管路外面を断熱性のカバーで被覆し結露を防止する対策が採られている。このような断熱性のカバーにより、管路に取り付けられるバタフライ弁も、弁本体と弁軸筒の一部は被覆され断熱されている。

【0003】しかしながら、管路に対して直交した状態で弁本体から伸び出す弁軸筒の大部分特にその外端部と、弁軸筒の外端に連結されるアクチュエータは、その形状が複雑であると共に管路とは方向性が異なるため、断熱カバーによる断熱被覆が困難であり、しばしば断熱被覆を施さないまま大気中に露出され、露出した弁軸筒やアクチュエータの外面に大気中の水分が結露して腐食を生じさせたり、水滴が滴下して床を汚す等の問題があった。

【0004】そこで、図11に示すように管路(1)を被覆する断熱カバー(2)とは別の断熱カバー(3)で、弁軸筒(4)やアクチュエータ(5)を断熱被覆することも行われているが、弁軸筒の外端部やアクチュエータは前述したように外面形状が複雑であると共に、管路(1)とは直交した方向に位置しており、更にバタフライ弁の機能、用途、使用場所、制御方式等に応じて形状、構造が異なっているため、単一のバタフライ弁に対して他種類の断熱カバーを用意しなければならないと言う問題があった。

【0005】かかる問題を解決するために、図12に示すように管路を断熱被覆する断熱カバーでは被覆されない弁軸筒のネック部(6)をオーステナイトステンレス鋼、インコネル等の熱伝導性の低い金属製パイプ材料で形成し、弁本体(7)をこれよりも低融点の金属材料、例えばアルミニウム、マグネシウム、鋳鉄等の鋳物材で形成し、弁軸筒ネック部(6)と弁本体(7)とを一体に鋳造して、弁軸筒並びにアクチュエータの断熱被覆を不要としたものが特開平5-126260号公報に開示されている。しかしながら、このものにあつては、バタフライ弁の弁体の開閉および制御時の連続的且過酷な仕様条件において、弁軸筒ネック部を構成する薄肉ステンレスパイプが捻れてくるおそれがあった。

【0006】この発明は、金属製の弁軸筒と樹脂製の連結フランジ部とを正確に芯出ししつつ廻り止め状態で連結し、連結部からの流体漏れを確実に防止しつつ抜け止め状態で連結することを課題とする。

【0007】

【課題を解決するための手段】上記課題を解決するためにこの発明が採った手段は、アルミニウム等の鋳物材で形成した弁軸挿通部の外端部外周面に連結溝を等間隔に複数形成すると共に、該連結溝の間に位置してネジ孔

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を有するネジ筒部を設け、断熱性樹脂からなる連結フランジ部に前記ネジ溝に嵌入する連結脚を形成し、連結溝への連結脚の嵌入により連結フランジ部を廻り止め状態で弁軸挿通部に連結しつつ、連結フランジ部からネジ筒部のネジ孔に螺入されるネジにより連結フランジ部を弁軸挿通部に抜け止め状態で連結したことを特徴とする。

【0008】又、ネジ筒部を含む弁軸筒の外端部外周面を受け入れる嵌合壁を連結フランジ部に形成し、該嵌合壁内に連結脚を形成すると共にネジ筒部を嵌入する受入孔を形成したことを特徴とする。

【0009】

【発明の実施の形態】以下に図面を参照しつつこの発明の好ましい実施の形態を詳細に説明する。図において、(10)は円筒形の流路を貫穿したバタフライ弁の弁本体であつて、アルミニウム、マグネシウム、鋳鉄等の鋳物材で鋳造される。弁本体(10)には、形状の複雑な外端部を除いて、ほぼ直線状に延びており形状が比較的単純な弁軸筒の弁軸挿通部(11)が一体に形成される。弁本体(10)の流路内周面には、従来周知のようにゴム状弾性を有する密封材であるシートリング(12)が装着され、該シートリング(12)に外周面が接離する円盤状の弁体(13)が弁本体内に回転自在に軸支される。弁体(13)には、弁棒(14)、(15)が軸支され、一方の弁棒(14)は駆動側の弁棒であつて、前記弁軸筒の弁軸挿通部(11)を通して外方に延び出しており、外端にアクチュエータ(16)を連結することが出来る。他方の弁棒(15)は、遊動側の弁棒である。

【0010】弁本体(10)と一体に形成された弁軸筒の弁軸挿通部(11)の外端に、連結フランジ部(17)が固着される。該連結フランジ部(17)は、弁軸挿通部(11)の外端に廻り止め状態で強固に固着され、アクチュエータ(16)を載置支持する。連結フランジ部(17)は、弁本体(10)並びにこれと一体に形成された弁軸挿通部(11)より熱伝導率が低く断熱性に優れた樹脂材料、例えばナイロン、ポリフェニレンエーテル、ポリフェニレンサルファイド等の樹脂材料で成形される。かかる樹脂材料の熱伝導率は、 $0.223 \text{ kcal/m} \cdot \text{hr} \cdot ^\circ\text{C}$ であり、弁本体および弁軸挿通部を構成するアルミニウムの熱伝導率 $190 \text{ kcal/m} \cdot \text{hr} \cdot ^\circ\text{C}$ やステンレス鋼の熱伝導率 $4 \text{ kcal/m} \cdot \text{hr} \cdot ^\circ\text{C}$ に比して小さな熱伝導率であるため、弁本体および弁軸挿通部からの熱伝導作用を連結フランジ部(17)で効果的に遮断することが出来、連結フランジ部(17)並びにアクチュエータ(16)における結露現象を防止することが出来る。この結果、連結フランジ部(17)並びにアクチュエータ(16)を断熱カバーで被覆する必要がなくなる。

【0011】連結フランジ部(17)と弁軸挿通部(11)との結合は、図1から6に示すように連結フランジ部(17)の下面から下方に延び出す4本の連結脚(18)を弁軸挿通部(11)の上端外面に形成した連結溝(19)に係入して、廻り止め状態で連結すると共に、ネジ(20)で締め着して軸方向に結合する。連結フランジ部(17)と弁軸挿通部(11)と

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の連結構造は、これに限られるものではない。図7から9に示すように連結フランジ部(17)の下面に弁軸挿通部(11)の上端に嵌合する方形の嵌合壁(21)を形成し、該嵌合壁(21)の内部において連結脚(18)と連結溝(19)による連結を達成すると共に、弁軸挿通部(11)の上端外面に膨出して形成されたネジ筒部(22)を嵌合壁(21)内の受入孔(23)に係入させてより強固な廻り止め結合を図っても良い。尚、フランジ部と弁軸挿通部との連結構造は、図示の構造に限られるものではない。両者を廻り止め状態で、且軸方向の抜け止めを図りうる構造であればいかなる連結構造であってもよい。

【0012】連結フランジ部(17)は、その全体を前記断熱性樹脂で形成しても良いが、アクチュエータ(16)の載置支持のために上面に金属板等のアクチュエータ支持部を設けても良い。この場合、該金属板が弁軸挿通部(11)や駆動側弁棒(14)に直接接触しないようにするものとする。

【0013】図10は、この発明にかかるバタフライ弁の断熱被覆処理を示し、管路(1)の外周面を断熱カバーにて被覆すると共に、バタフライ弁の弁軸筒の弁軸挿通部(11)を断熱カバー(24)で被覆する。連結フランジ部(17)とアクチュエータ(16)は、断熱被覆されることなく大気中に露出しているが、連結フランジ部(17)による伝熱遮断により、これらが結露してくることはない。

【0014】

【発明の効果】この発明によれば、弁軸筒外端部外周面に複数の連結溝を形成し、該連結溝に連結フランジ部の連結脚を嵌入するようにしてあるので、弁軸筒と連結フランジ部とは確実な廻り止め状態で連結されると共に、正確な芯出しを達成することが可能となる。更に、弁軸筒の外周面に形成されたネジ筒部のネジ孔に連結フランジ部からネジを螺入して両者を結合するため、連結フランジ部と弁軸筒の連結を簡単に行うことが出来確実な抜け止めを図ることが出来る。しかも、弁軸筒と連結フランジ部との接合部にパッキン等の漏れ止め手段を適用して連結部からの流体の漏れを簡単に防止することが出来*

*ると共に、弁棒外周面に適用するOリングを連結フランジの内周面に適用して弁棒と連結フランジ部との間からの漏れも防止することが出来、しかも必要に応じてネジを螺脱してパッキンやOリング等の交換も可能となる。

【図面の簡単な説明】

【図1】この発明にかかるバタフライ弁の縦断面図

【図2】要部の斜視図

【図3】同断面図

【図4】同分解斜視図

【図5】連結フランジ部の平面図

【図6】図6A-A'線に沿った断面図

【図7】一変形の分解斜視図

【図8】同弁軸挿通部上面を示す平面図

【図9】図8B-B'線に沿った断面図

【図10】この発明の断熱被覆を示す図

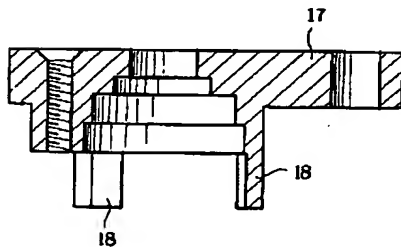
【図11】従来の断熱被覆を示す図

【図12】従来の断熱性弁軸を有するバタフライ弁を示す図

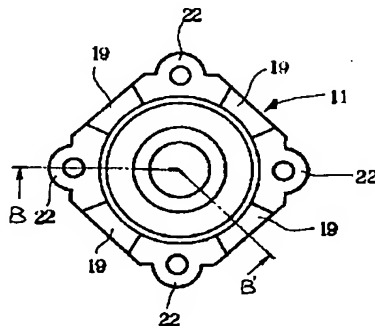
【符号の説明】

- (1) 管路
- (2) 断熱カバー
- (10) 弁本体
- (11) 弁軸挿通部
- (12) シートリング
- (13) 弁体
- (14) 駆動側弁棒
- (15) 遊動側弁棒
- (16) アクチュエータ
- (17) 連結フランジ部
- (18) 連結脚
- (19) 連結溝
- (20) ネジ
- (21) 嵌合壁
- (22) ネジ筒部
- (23) 受入孔

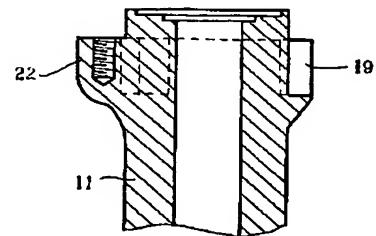
【図6】



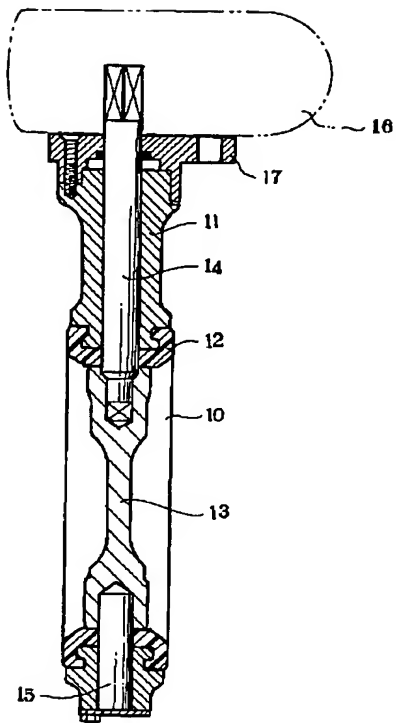
【図8】



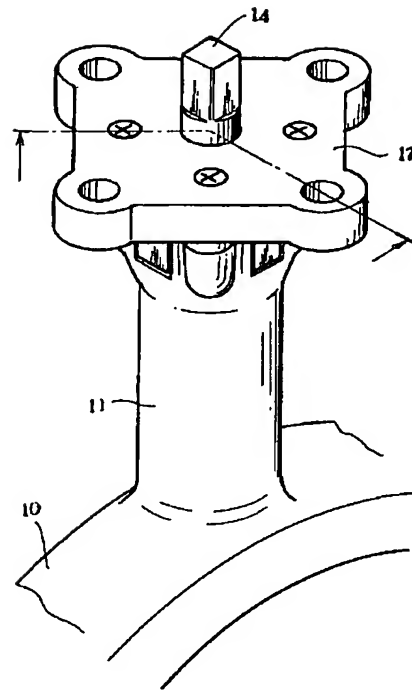
【図9】



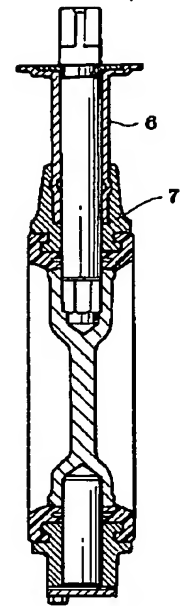
【図1】



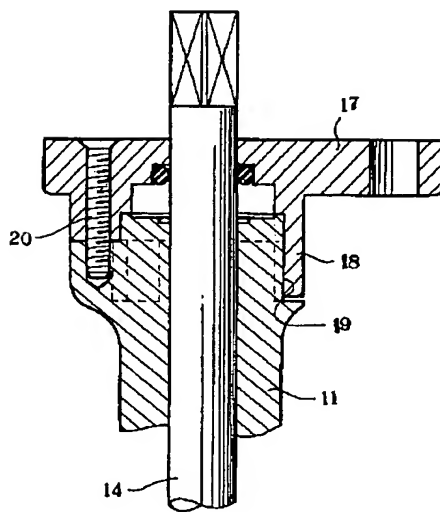
【図2】



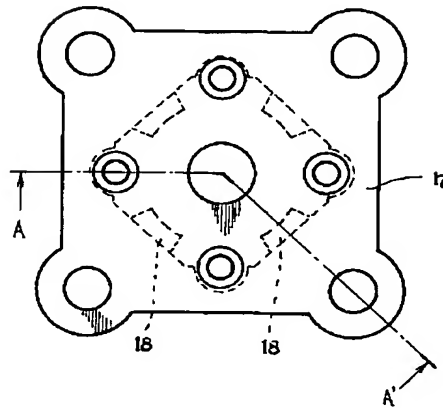
【図12】



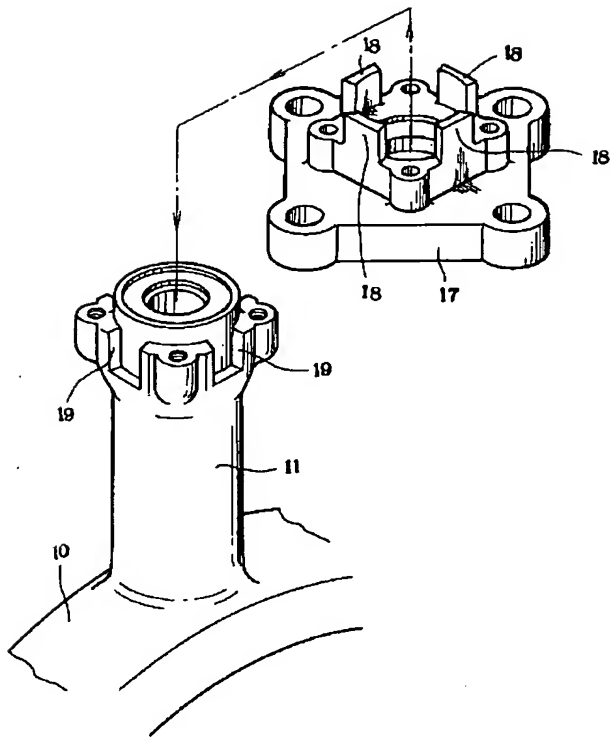
【図3】



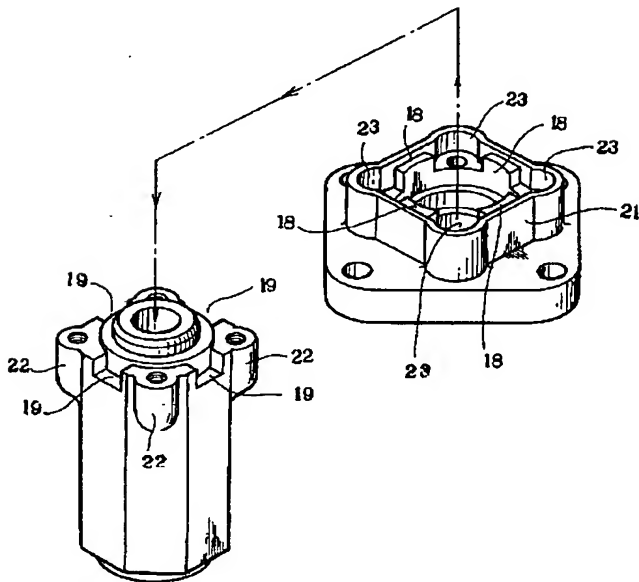
【図5】



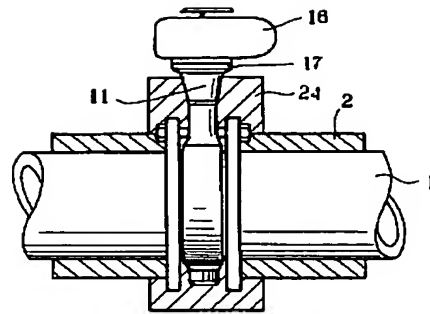
【図4】



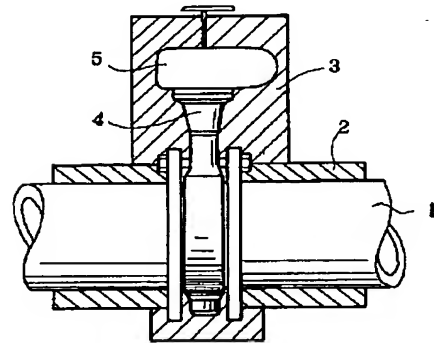
【図7】



【図10】



【図11】



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CLAIMS

(57) [Claim(s)]

[Claim 1] It equips with the seat ring which consists of an elastic seal member in the valve body which installed cylinder-like passage. The valve shaft tube which inserts in the driving-side valve rod which supports to revolve the disc-like valve element which attaches and detaches to this seat ring, enabling free rotation, and supports a valve element to revolve is made to prolong for it and come out from a valve body in the direction of a path. The valve-stem insertion section of the valve shaft tube except a heel is formed in a valve body list by cast material, such as aluminum, at one. In the butterfly valve which fixed the connection flange which becomes the outer edge of the valve-stem insertion section from adiathermic resin, planning the omission stop of ***** in the state of a surroundings stop, and prevented the dew condensation which was made to carry out installation support of the actuator to this connection flange While forming two or more connection slots in the heel peripheral face of the valve-stem insertion section formed by cast material, such as aluminum, at equal intervals Prepare the screw cylinder part which is located between these connection slots and has a screw hole, and the connection foot inserted in the connection flange which consists of adiathermic resin in said screw slot is formed. The butterfly valve which prevented the dew condensation characterized by having escaped from the connection flange in the valve-stem insertion section with the screw thrust into the screw hole of a screw cylinder part, and connecting in the state of a stop from a connection flange, connecting a connection flange with the valve-stem insertion section in the state of a surroundings stop by insertion of the connection foot to a connection slot. [Claim 2] The butterfly valve according to claim 1 characterized by forming the acceptance hole which inserts a screw cylinder part while forming in a connection flange the fitting wall which accepts the heel peripheral face of the valve shaft tube containing a screw cylinder part and forming a connection foot in this fitting Kabeuchi.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention originates in the temperature gradient of the fluid and atmospheric air which flow down a duct in more detail about the butterfly valve which prevented dew condensation, and relates to the butterfly valve which prevents that dew condensation arises into the part exposed into atmospheric air.

[0002]

[Description of the Prior Art] Conventionally, the cure with which the moisture in atmospheric air dews the outside surface of a duct, accumulates, covers a duct outside surface with adiathermic covering, and prevents dew condensation is taken by the temperature gradient of the fluid and atmospheric air which flow down the duct which the cryogenic fluid like cooling or piping for refrigeration ****. The butterfly valve attached in a duct is also covered with such adiathermic covering, and a part of valve body and valve shaft tube are insulated.

[0003] However, the actuator connected with most valve shaft tubes which begin to be extended from a valve body in the condition of having intersected perpendicularly to the duct especially its heel, and the outer edge of a valve shaft tube Since directivity differs from a duct while the configuration is complicated, the heat insulation coat by the insulation cover is difficult. The moisture in atmospheric air dewed the outside surface of the valve shaft tube and actuator which were exposed into atmospheric air, often not giving a heat insulation coat, and were exposed, corrosion was produced, and waterdrop trickled and there were problems, such as soiling a floor.

[0004] Then, although it is an insulation cover (3) other than the insulation cover (2) which covers a duct (1) as shown in drawing 11, and carrying out the heat insulation coat of a valve shaft tube (4) and the actuator (5) is also performed As mentioned above, while the outside configuration of the heel and actuator of a valve shaft tube is complicated Since it was located in the direction which intersected perpendicularly, a configuration and structure differed from the duct (1) according to the function of a butterfly valve, the application, the service space, the control system, etc. further and it was, there was a problem referred to as having to prepare the insulation cover of other types to a single butterfly valve.

[0005] In order to solve this problem, the neck section (6) of the valve shaft tube which is not covered with the insulation cover which carries out the heat insulation coat of the duct as shown in drawing 12 An austenitic stainless steel, It forms with thermally conductive low metal pipe ingredients, such as Inconel. A valve body (7) rather than this The metallic material of the low melting point, For example, it forms by cast material, such as aluminum, magnesium, and cast iron, the valve shaft tube neck section (6) and a valve body (7) are cast to one, and what made the heat insulation coat of an actuator unnecessary at the valve shaft tube list is indicated by JP,5-126260,A. however — if it is in this thing — closing motion of the valve element of a butterfly valve, and continuous ** at the time of control — in severe specification conditions, there was a possibility that the light-gage stainless steel pipe which constitutes the valve shaft tube neck section might be twisted.

[0006] This invention makes it a technical problem to connect in the state of a surroundings stop, aligning a metal valve shaft tube and the connection flange made of resin to accuracy, to escape preventing the fluid leakage from the connection section certainly, and to connect in the state of a stop.

[0007]

[Means for Solving the Problem] The means which this invention took in order to solve the above-mentioned technical problem While forming two or more connection slots in the heel peripheral face of the valve-stem insertion section formed by cast material, such as aluminum, at equal intervals Prepare the screw cylinder part which is located between these connection slots and has a screw hole, and the connection foot inserted in the connection flange which consists of adiathermic resin in said screw slot is formed. It is characterized by having escaped from the connection flange in the valve-stem insertion section with the screw thrust into the screw hole of a screw cylinder part, and connecting in the state of a stop from a connection flange, connecting a connection flange with the valve-stem insertion section in the state of a surroundings stop by insertion of the connection foot to a connection slot.

[0008] Moreover, while forming in a connection flange the fitting wall which accepts the heel peripheral face of the valve shaft tube containing a screw cylinder part and forming a connection foot in this fitting Kabeuchi, it is characterized by forming the acceptance hole which inserts a screw cylinder part.

[0009]

[Embodiment of the Invention] The gestalt of desirable implementation of this invention is explained to a detail, referring to a drawing below. In drawing, (10) is the valve body of the butterfly valve which excavated the passage of a cylindrical shape, and it is cast in cast material, such as aluminum, magnesium, and cast iron. Except for the heel where a configuration is complicated on a valve body (10), it has extended in the shape of a straight line mostly, and the valve-stem insertion section (11) of a valve shaft tube with a comparatively simple configuration is formed in one. The passage inner skin of a valve body (10) is equipped with the seat ring (12) which is the sealant which has rubber-like elasticity as everyone knows conventionally, and the disc-like valve element (13) which a peripheral face attaches and detaches to this seat ring (12) is supported to revolve free [a revolution in a valve body]. A valve rod (14) and (15) are supported to revolve by the valve element (13), and it is the valve rod

of a driving side, and one valve rod (14) beginning to be prolonged in the method of outside through the valve-stem insertion section (11) of said valve shaft tube, and can connect an actuator (16) with an outer edge. The valve rod (15) of another side is a valve rod by the side of a ranging behavior.

[0010] A connection flange (17) fixes to the outer edge of the valve-stem insertion section (11) of the valve shaft tube formed in a valve body (10) and one. This connection flange (17) fixes firmly in the state of a surroundings stop to the outer edge of the valve-stem insertion section (11), and carries out installation support of the actuator (16). A connection flange (17) is fabricated with resin ingredients, such as the resin ingredient thermal conductivity excelled [ingredient] in adiathermic low, for example, nylon, polyphenylene ether, and polyphenylene sulfide, from the valve-stem insertion section (11) formed in the valve body (10) list at this and one. The thermal conductivity of this resin ingredient is 0.223kcal/m-hr and **, as compared with thermal conductivity 190 kcal/m-hr and ** of aluminum, and thermal conductivity 4 kcal/m-hr and ** of stainless steel which constitute a valve body and the valve stem insertion section, since it is small thermal conductivity, can intercept effectively the heat conduction operation from a valve body and the valve stem insertion section by the connection flange (17), and can prevent the dew condensation phenomenon in an actuator (16) in a connection flange (17) list. It becomes unnecessary consequently, to cover an actuator (16) with an insulation cover in a connection flange (17) list.

[0011] With a screw (20), it fastens and wears, and it is carried out, and is combined with shaft orientations while association with a connection flange (17) and the valve-stem insertion section (11) is inserted into the connection slot (19) in which four connection feet (18) which begin to be caudad prolonged from the underside of a connection flange (17) were formed on the upper bed outside surface of the valve-stem insertion section (11) as shown in 6 from drawing 1, and connecting it in the state of a surroundings stop. The connection structure of a connection flange (17) and the valve-stem insertion section (11) is not restricted to this. As shown in 9 from drawing 7, the fitting wall (21) of the rectangle which fits into the upper bed of the valve-stem insertion section (11) is formed in the underside of a connection flange (17). While attaining connection by the connection foot (18) and the connection slot (19) in the interior of this fitting wall (21), the screw cylinder part (22) formed in the upper bed outside surface of the valve-stem insertion section (11) by bulging is made to insert into the acceptance hole (23) within a fitting wall (21), and it is [association / firmer / surroundings stop] good in drawing. In addition, the connection structure of a flange and the valve-stem insertion section is not restricted to the structure of a graphic display. As long as it is the structure where the omission stop of ***** can be planned for both in the state of a surroundings stop, you may be what kind of connection structure.

[0012] Although a connection flange (17) may form the whole by said adiathermic resin, it may form actuator supporters, such as a metal plate, in a top face for installation support of an actuator (16). In this case, it is made for this metal plate not to contact the valve-stem insertion section (11) and a driving-side valve rod (14) directly.

[0013] Drawing 10 shows heat insulation coat processing of the butterfly valve concerning this invention, and it covers the valve-stem insertion section (11) of the valve shaft tube of a butterfly valve with an insulation cover (24) while it is at an insulation cover and covers the peripheral face of a duct (1). Although the connection flange (17) and the actuator (16) are exposed into atmospheric air, without carrying out a heat insulation coat, these do not dew by heat transfer cutoff by the connection flange (17).

[0014]

[Effect of the Invention] Since according to this invention two or more connection slots are formed in a valve shaft tube heel peripheral face and the connection foot of a connection flange is inserted in this connection slot, while being connected in the state of a surroundings stop with positive valve shaft tube and connection flange, it becomes possible to attain an exact alignment. Furthermore, since a screw is thrust into the screw hole of the screw cylinder part formed in the peripheral face of a valve shaft tube from a connection flange and both are combined, connection of a connection flange and a valve shaft tube can be performed easily, and a positive omission stop can be planned. And while being able to prevent the leakage of the fluid from the connection section easily with the application of sealing-device means, such as packing, to the joint of a valve shaft tube and a connection flange, with the application of the O ring applied to a valve rod peripheral face, the leakage from between a valve rod and connection flanges can also be prevented to the inner skin of a connection flange, moreover, a screw is unscrewed if needed, and exchange of packing, an O ring, etc. also becomes possible.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention originates in the temperature gradient of the fluid and atmospheric air which flow down a duct in more detail about the butterfly valve which prevented dew condensation, and relates to the butterfly valve which prevents that dew condensation arises into the part exposed into atmospheric air.

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PRIOR ART

[Description of the Prior Art] Conventionally, the cure with which the moisture in atmospheric air dews the outside surface of a duct, accumulates, covers a duct outside surface with adiathermic covering, and prevents dew condensation is taken by the temperature gradient of the fluid and atmospheric air which flow down the duct which the cryogenic fluid like cooling or piping for refrigeration ****. The butterfly valve attached in a duct is also covered with such adiathermic covering, and a part of valve body and valve shaft tube are insulated.

[0003] However, the actuator connected with most valve shaft tubes which begin to be extended from a valve body in the condition of having intersected perpendicularly to the duct especially its heel, and the outer edge of a valve shaft tube Since directivity differs from a duct while the configuration is complicated, the heat insulation coat by the insulation cover is difficult. The moisture in atmospheric air dewed the outside surface of the valve shaft tube and actuator which were exposed into atmospheric air, often not giving a heat insulation coat, and were exposed, corrosion was produced, and waterdrop trickled and there were problems, such as soiling a floor.

[0004] Then, although it is an insulation cover (3) other than the insulation cover (2) which covers a duct (1) as shown in drawing 11, and carrying out the heat insulation coat of a valve shaft tube (4) and the actuator (5) is also performed As mentioned above, while the outside configuration of the heel and actuator of a valve shaft tube is complicated Since it was located in the direction which intersected perpendicularly, a configuration and structure differed from the duct (1) according to the function of a butterfly valve, the application, the service space, the control system, etc. further and it was, there was a problem referred to as having to prepare the insulation cover of other types to a single butterfly valve.

[0005] In order to solve this problem, the neck section (6) of the valve shaft tube which is not covered with the insulation cover which carries out the heat insulation coat of the duct as shown in drawing 12 An austenitic stainless steel, It forms with thermally conductive low metal pipe ingredients, such as Inconel. A valve body (7) rather than this The metallic material of the low melting point, For example, it forms by cast material, such as aluminum, magnesium, and cast iron, the valve shaft tube neck section (6) and a valve body (7) are cast to one, and what made the heat insulation coat of an actuator unnecessary at the valve shaft tube list is indicated by JP,5-126260,A. however — if it is in this thing — closing motion of the valve element of a butterfly valve, and continuous ** at the time of control — in severe specification conditions, there was a possibility that the light-gage stainless steel pipe which constitutes the valve shaft tube neck section might be twisted.

[0006] This invention makes it a technical problem to connect in the state of a surroundings stop, aligning a metal valve shaft tube and the connection flange made of resin to accuracy, to escape preventing the fluid leakage from the connection section certainly, and to connect in the state of a stop.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since according to this invention two or more connection slots are formed in a valve shaft tube heel peripheral face and the connection foot of a connection flange is inserted in this connection slot, while being connected in the state of a surroundings stop with positive valve shaft tube and connection flange, it becomes possible to attain an exact alignment. Furthermore, since a screw is thrust into the screw hole of the screw cylinder part formed in the peripheral face of a valve shaft tube from a connection flange and both are combined, connection of a connection flange and a valve shaft tube can be performed easily, and a positive omission stop can be planned. And while being able to prevent the leakage of the fluid from the connection section easily with the application of sealing-device means, such as packing, to the joint of a valve shaft tube and a connection flange, with the application of the O ring applied to a valve rod peripheral face, the leakage from between a valve rod and connection flanges can also be prevented to the inner skin of a connection flange, moreover, a screw is unscrewed if needed, and exchange of packing, an O ring, etc. also becomes possible.

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MEANS

[Means for Solving the Problem] The means which this invention took in order to solve the above-mentioned technical problem : While forming two or more connection slots in the heel peripheral face of the valve-stem insertion section formed by cast material, such as aluminum, at equal intervals Prepare the screw cylinder part which is located between these connection slots and has a screw hole, and the connection foot inserted in the connection flange which consists of adiabatic resin in said screw slot is formed. It is characterized by having escaped from the connection flange in the valve-stem insertion section with the screw thrust into the screw hole of a screw cylinder part, and connecting in the state of a stop from a connection flange, connecting a connection flange with the valve-stem insertion section in the state of a surroundings stop by insertion of the connection foot to a connection slot.

[0008] Moreover, while forming in a connection flange the fitting wall which accepts the heel peripheral face of the valve shaft tube containing a screw cylinder part and forming a connection foot in this fitting Kabeuchi, it is characterized by forming the acceptance hole which inserts a screw cylinder part.

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[Embodiment of the Invention] The gestalt of desirable implementation of this invention is explained to a detail, referring to a drawing below. In drawing, (10) is the valve body of the butterfly valve which excavated the passage of a cylindrical shape, and it is cast in cast material, such as aluminum, magnesium, and cast iron. Except for the heel where a configuration is complicated on a valve body (10), it has extended in the shape of a straight line mostly, and the valve-stem insertion section (11) of a valve shaft tube with a comparatively simple configuration is formed in one. The passage inner skin of a valve body (10) is equipped with the seat ring (12) which is the sealant which has rubber-like elasticity as everyone knows conventionally, and the disc-like valve element (13) which a peripheral face attaches and detaches to this seat ring (12) is supported to revolve free [a revolution in a valve body]. A valve rod (14) and (15) are supported to revolve by the valve element (13), and it is the valve rod of a driving side, and one valve rod (14) is beginning to be prolonged in the method of outside through the valve-stem insertion section (11) of said valve shaft tube, and can connect an actuator (16) with an outer edge. The valve rod (15) of another side is a valve rod by the side of a ranging behavior.

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[0012] Although a connection flange (17) may form the whole by said adiabatic resin, it may form actuator supporters, such as a metal plate, in a top face for installation support of an actuator (16). In this case, it is made for this metal plate not to contact the valve-stem insertion section (11) and a driving-side valve rod (14) directly.

[0013] Drawing 10 shows heat insulation coat processing of the butterfly valve concerning this invention, and it covers the valve-stem insertion section (11) of the valve shaft tube of a butterfly valve with an insulation cover (24) while it is at an insulation cover and covers the peripheral face of a duct (1). Although the connection flange (17) and the actuator (16) are exposed into atmospheric air, without carrying out a heat insulation coat, these do not dew by heat transfer cutoff by the connection flange (17).

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] Drawing of longitudinal section of the butterfly valve concerning this invention

[Drawing 2] The perspective view of an important section

[Drawing 3] This sectional view

[Drawing 4] Isomerism solution perspective view

[Drawing 5] The top view of a connection flange

[Drawing 6] The sectional view which met the drawing 6 A-A' line

[Drawing 7] The decomposition perspective view of a complete-change form

[Drawing 8] The top view showing this valve-stem insertion section top face

[Drawing 9] The sectional view which met the drawing 8 B-B' line

[Drawing 10] Drawing showing the heat insulation coat of this invention

[Drawing 11] Drawing showing the conventional heat insulation coat

[Drawing 12] Drawing showing the butterfly valve which has the conventional adiathermic valve stem

[Description of Notations]

(1) Duct

(2) Insulation cover

(10) Valve body

(11) Valve-stem insertion section

(12) Seat ring

(13) Valve element

(14) Driving-side valve rod

(15) Ranging behavior side valve rod

(16) Actuator

(17) Connection flange

(18) Connection foot

(19) Connection slot

(20) Screw

(21) Fitting wall

(22) Screw cylinder part

(23) Acceptance hole

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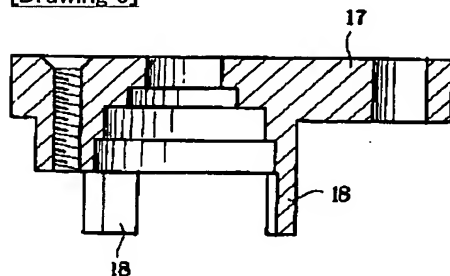
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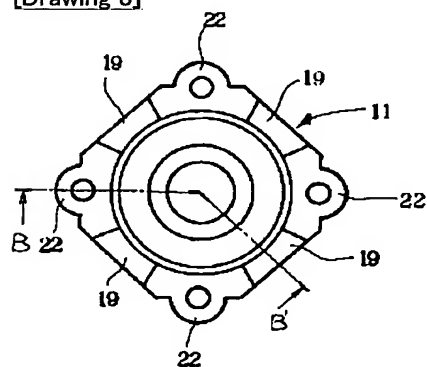
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DRAWINGS

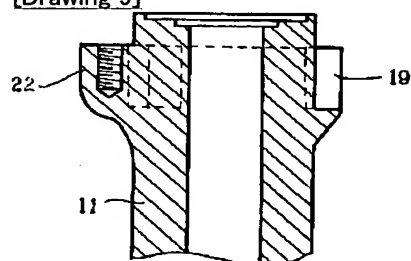
[Drawing 6]



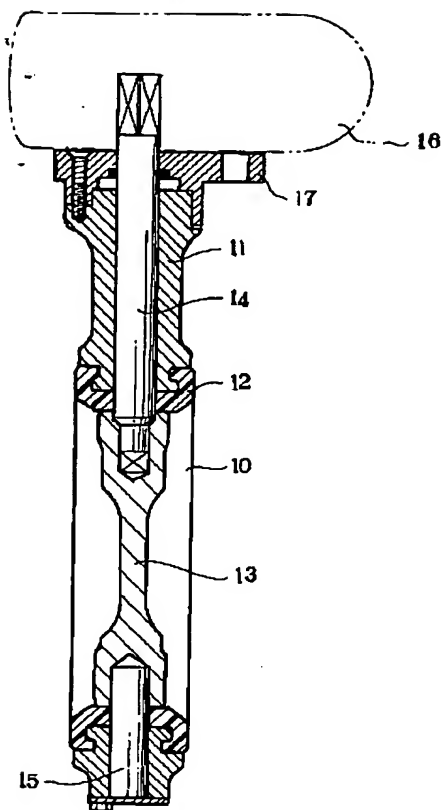
[Drawing 8]



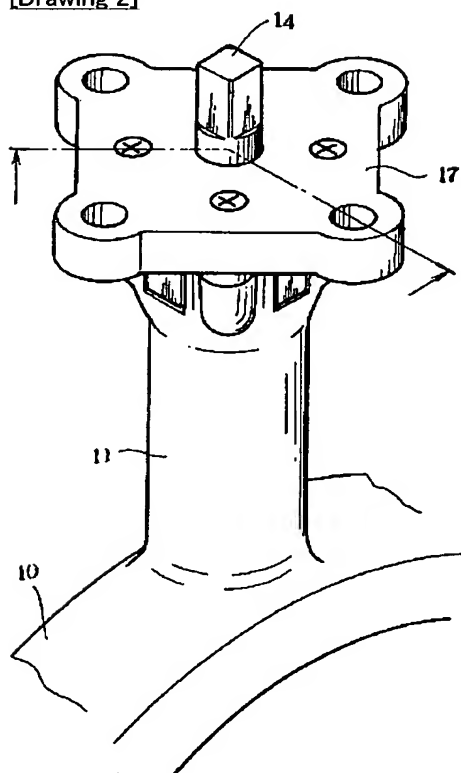
[Drawing 9]



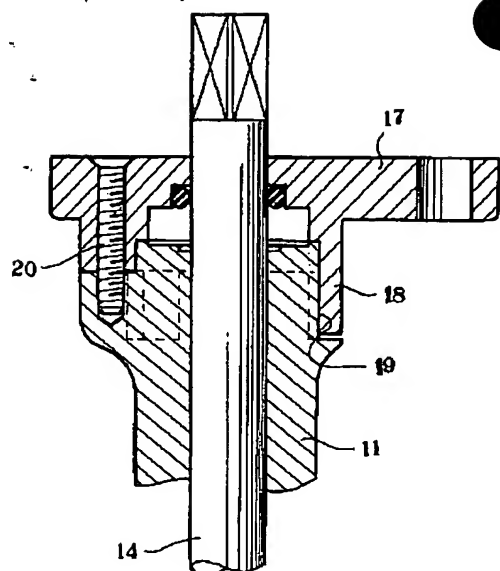
[Drawing 1]



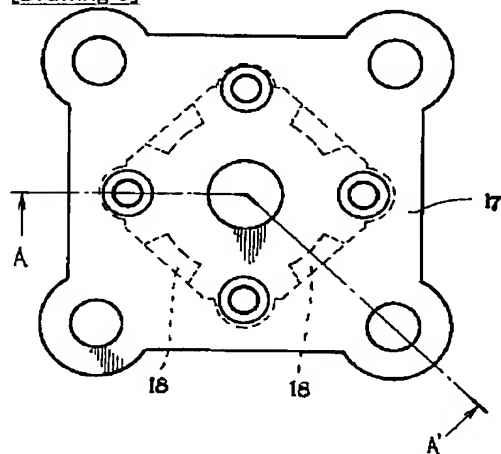
[Drawing 2]



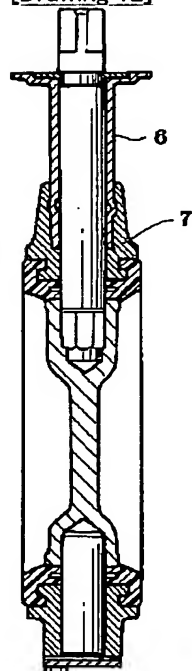
[Drawing 3]



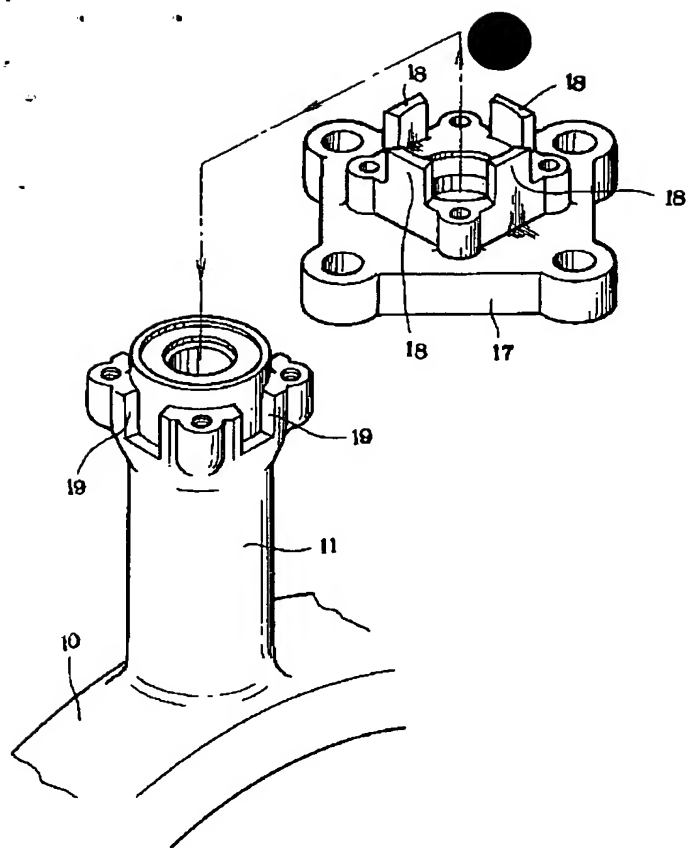
[Drawing 5]



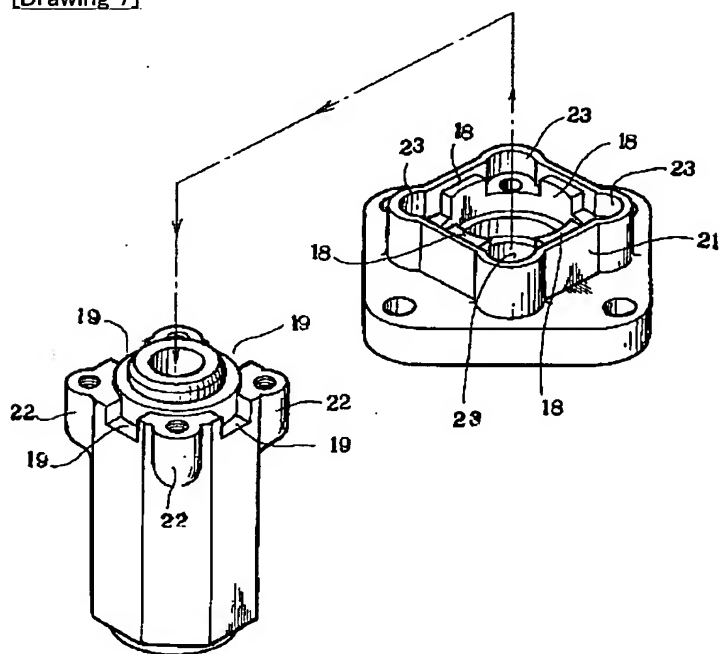
[Drawing 12]



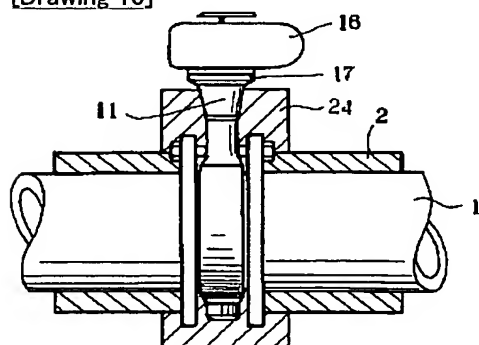
[Drawing 4]



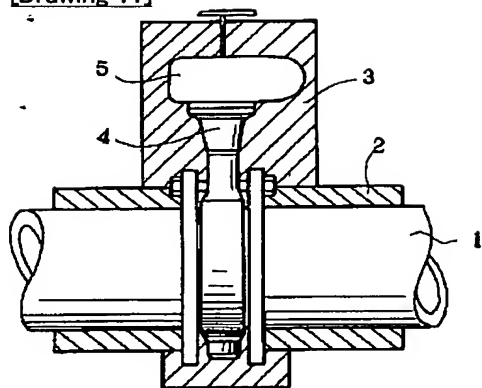
[Drawing 7]



[Drawing 10]



[Drawing 11]



[Translation done.]